EDAB e-news News from the Economic Development Advisory Board

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Greetings!

Happy New Year! 2014 promises to be a year of continued change and advancement in the County, as the business community takes action based on recommendations from hard-working task forces and detailed studies. This month, EDAB e-News concludes its series on the University Research Park Study with an in-depth look at the education needs for a strong technology workforce. Don't miss our feature article offering statistics about workers who live here but work elsewhere. Next, we profile local technology company SURVICE Engineering, which is embracing the latest 3D printing technology in its prototypes. Fast Facts gives some interesting facts about the 3D printing industry.

For more information on the efforts of the Economic Development Advisory Board to advocate for positive growth in the County, visit www.harfordbusiness.org.

Sincerely,

Eric McLauchlin
Chairman, EDAB

Education For The Technology Generation

From white boards and laptops to STEM laboratories and cybersecurity programs, we're educating the technology generation. Not only are schools and universities integrating computers, presentation equipment and electronics into the curriculum, they are encouraging students to pursue careers in high-technology fields. Harford County has the opportunities for these high-tech jobs right in its back yard with Aberdeen Proving Ground and the companies that serve it. Yet, nearly 6,000 computer, engineering and scientific workers and nearly 15,000 management, business and financial workers commute to jobs outside the County. In addition, according to the National Governor's Association, CEOs report that the availability of technically trained talent is their top priority - one that often determines where they locate high-value investments. How do we become the sought-after technology hub of the I95 corridor, with a rich crop of trained workers at-the-ready?

The University Research Park Study commissioned by the Chesapeake Science and Security Corridor focused heavily on an educated workforce, in addition to growing the regional industry base and fostering a "live, work, play" environment. Each of these challenges is interwoven, and if addressed properly, can put the County in a position for continued growth on all levels. The study advised leveraging partnerships across military, state, university and County resources, and identified gaps in technology development.

According to the study, the APG region already has a base of highly skilled workers, with over 42 percent of adults in the APG region holding a college degree. More than 2,000 people graduate each year with STEM-related degrees from the 42 universities within the states of Maryland, Delaware, Pennsylvania and New Jersey. These high-potential employees may be recruited by select companies who have programs in place to find them, but they are not exposed to the majority of small to medium-sized businesses in the APG region who struggle to find technology workers. The URP study recommended a talent connector to make these matches - specifically for STEM talent. Its objective would be to ensure that the APG region has the talent it needs from people who already live in the County - both graduating STEM students and seasoned executives who might be commuting outside the County. The study recommended a number of tactics to tap into this

talent, including a database of available positions, an outreach to local residents who currently commute, the creation of a group of trained, volunteer peer career mentors to facilitate transitions to new jobs in the region, and education and training programs to close any gaps in the high-tech learning process. Highly skilled STEM workers could also be courted through local alumni workers of the region's universities.

As these employees move into jobs with rapidly evolving technology, they would need to keep their skills current. The training opportunities now available through Harford Community College and the University Center are a good foundation for companies to build their programs, but there are more opportunities for growth. The URP study recommended a mechanism to identify the common skill needs across APG organizations. Based on those findings, a collaboration between universities and companies could result in the most useful specialized courses. The study also recommended creating a clearinghouse to let companies know what's available in education and training.

One model cited by the study is the Shady Grove Campus of the University of Maryland System. This campus resulted from the educational training needs of the Rockville and Gaithersburg technology industry. When these communities didn't have nearby graduate study facilities, they partnered with reputable schools to come up with a nine-university partnership. Each university has a specialty which addresses key workforce development issues. A similar approach with area colleges and universities would make Harford County an appealing place to do business and a technology education hub.

While some of these education programs would require special equipment or facilities because of their highly technical and specialized content, with proper planning, these facilities could be used first for technology education and secondarily for general use. For example, cybersecurity and chem/bio defense studies require laboratories and research sites. These sites could be used for career advancement education, but also extend to general usage. Despite cybersecurity's sweeping coverage that includes computer systems, radar, sensors and more, the number of competent cybersecurity workers is small. By developing a cybersecurity workforce in the APG region, we can strengthen the technology workforce and attract key companies to the area.

By using the technology we have to build sensible education infrastructures like a clearinghouse, specialized institutes and a talent coordinator, we can streamline the resources for both companies and educators. The process of having a prepared workforce would become second nature here. With technology and talent as priorities, the region would truly become a center where people can live, work and play.

Business Spotlight: SURVICE Engineering & SURVICE Metrology

The SURVICE Engineering Company, headquartered in Belcamp, MD, provides support for all phases of the combat systems engineering process for government and industry. Started in 1981 in the basement of founder and long-time CEO Jim Foulk, SURVICE established an early niche in providing system survivability services - hence the name "SURV-ICE." The company has since grown to be 350 employees strong in almost a dozen locations nationwide, and its markets now include defense, homeland security, advanced technology, environmental and commercial business.

Left - SURVICE Engineering located in Water's Edge Corporate Campus, Belcamp
Right: Enhanced - CLR from The SURVICE Metrology Center, Belcamp

SURVICE Metrology is a major division within SURVICE that provides innovative and integrated metrology (measurement) and dimensional inspection, 3-D modeling and related services. The division's full-service Metrology Center, also located in Belcamp, supports a wide range of customers and other company divisions with high-precision laser measurement, modeling and geometric conversion, application development and hydroelectric power generation support.

One technology the company has embraced for its modeling products is additive manufacturing, often referred to as 3-D printing. Trained SURVICE experts use 3-D printing technology to support modeling, design engineering and rapid prototyping. The 3-D printers create new parts by building up layers of material, rather than machining away unnecessary material from bulk stock. The company says this process is ideal for concept prototyping and custom solutions, allowing the creation of shapes previously impossible to create with traditional machining techniques. In addiition, the 3-D objects can be printed in a wide range of colors and materials including plastics, aluminum, titanium and stainless steel.

SURVICE has earned several awards for its innovation and technology advances, as well as its employee-friendly atmosphere. It has been named by the Baltimore Sun as one of Baltimore's top work places for the past two years, and it recently won the SmartCEO Magazine's 2013 Voltage Award for technology innovation.

While SURVICE continues to focus on technology innovations, its employees never lose sight of the community in which they do business. The company gives back in many different ways, including through programs dedicated to supporting the military, local churches, youth groups and humanitarian efforts. SURVICE personnel also strongly support numerous science, technology, engineering and mathematics (STEM) programs to continue the education of our technical workforce. For more information on SURVICE and SURVCE Metrology, visit www.survice.com and www.survicemetrology.com.

Fast Facts: 3D Printing

- The first 3D printer was invented by Chuck Hull in the mid-1980s. It was cumbersome to program and heavy to move. Today, a 3D printer starts at $1,299 and is more portable than the first prototypes.
- 3D printing hardware and related engineering expertise has been in Harford County for more than 20 years in the form of research and prototyping at Aberdeen Proving Ground Edgewood Chemical and Biological Command (ECBC), specifically its Advance Design and Manufacturing (ADM) mission.
- In addition to the engineering industry, 3D printing technology, or additive manufacturing, is used to create models or products in the jewelry, footwear, industrial design, architecture, automotive, aerospace, dental and medical industries.
- Scientists are experimenting with 3D printing technology for making replacement body parts.
- NASA is considering 3D printing to make parts and tools on demand in space. The agency is also exploring how it could be used to make food in space.
- Doctors at the University of Michigan worked with scientists there to create a custom-made tracheal splint for an infant whose condition could cause his trachea to collapse while breathing or coughing. Using 3D printing and a material called polycaprolactone, they created a splint that expanded the bronchus and provided a skeleton for growth.
- Disney Research created Papillion Technology, the ability to put projected images on animated characters' eyes by incorporating bundles of 3D-printed optical fibers.

Sources: Informationweek, 10 cool things 3D Printers can do at http://www.informationweek.com/desktop/10-cool-things-3-d-printers-can-do/d/d-id/1111025?page_number=2

David R. Craig, Harford County Executive

The Harford County Economic Development Advisory Board consists of a number of subcommittees - including technology, workforce development, finance, tourism, and land use - dedicated to the positive growth and Economic Development of Harford County